Wärtsilä
EnergoFlow
For improved energy efficiency
Improving fuel efficiency

In today’s increasingly competitive shipping environment, you need solutions that not only increase your efficiency, but that are also reliable and have a short payback period. Wärtsilä EnergoFlow is an innovative and cost-effective pre-swirl stator that increases fuel efficiency – without increasing maintenance needs.

**WÄRTSILÄ ENERGOFLOW**

Wärtsilä EnergoFlow creates optimal inflow for the propeller by guiding one side of the stern flow in the opposite direction to the propeller rotation, generating pre-swirl. The solution consists of multiple curved fins and a ring attached to the ship’s hull to prevent the power losses that typically occur in a propeller’s slipstream.

The curved fins enhance the propeller’s efficiency while keeping resistance at acceptable levels. The ring reduces the tip vortex and also levels out the peak stresses that occur in severe loading conditions such as slamming. As a result, less power is needed to propel the ship, leading to fuel savings.

**KEY BENEFITS**

- Improves fuel efficiency by up to 10%
- Reduces NOx and CO2 emissions
- Provides a quick return on investment – typically one to two years
- Requires no additional maintenance as the solution has no moving parts

**SCOPE OF SUPPLY**

The standard scope of supply for a Wärtsilä EnergoFlow delivery includes:

- System design, supply and class certification
- Redesign and modification of the existing propeller
- Installation drawings and instructions
- Design interface with the shipyard or ship designer
- Supervision by Wärtsilä technicians during installation
- Modification of the existing propeller if a new, optimized propeller is not included in the scope of supply

Optional scope of supply:

- New propeller with design optimised for Wärtsilä EnergoFlow
- Model EnergoFlow stator and/or model propeller for testing

**IMPROVE EFFICIENCY BY UP TO 10%**

The power savings that can be achieved with Wärtsilä EnergoFlow will vary depending on the specifics of each case, but it is possible to make some generalisations based on ship type (see Figure 2). Bulk carriers can achieve the highest fuel savings, in the range of 10%. Faster vessels such as container ships, which are already relatively efficient in propulsion terms, should still see a respectable 4% improvement. Regardless of ship type, Wärtsilä EnergoFlow typically pays for itself within one to two years.

The installation of EnergoFlow improves water inflow, which also has an effect on the propeller’s RPM. In principle, the propeller will become heavy running, meaning 3-5% lower RPM. In cases where a new propeller is not part of the scope, Wärtsilä will include a modification of the existing propeller in the scope of supply. This modification includes hydrodynamic design as well as the actual propeller modification carried out by experienced Wärtsilä service engineers.

Wärtsilä EnergoFlow strength characteristics are determined by validated methodology (see Figure 3). EnergoFlow can withstand peak loads due to vessel motion and slamming in heavy weather conditions. Design fatigue lifetime is 25 years, taking into account the cumulative effect of loads due to vessel motions based on the North Atlantic wave scatter diagram. Calculated vessel motions and resulting loads on EnergoFlow have been validated by model tests.

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Wärtsilä is a global leader in complete lifecycle power solutions for the marine and energy markets. By emphasising technological innovation and total efficiency, Wärtsilä maximises the environmental and economic performance of the vessels and power plants of its customers.